


MODEL 80C* (60-200 fs pump)

**PERFORMANCE SPECIFICATIONS FOR TOPAS-C WITH OPTIONS:
SH/SF, FH/SHSF, DUV, NDFG1 (DFG1), NDFG2 (DFG2)**
PUMP REQUIREMENTS

Input Wavelength	770-830 nm
Pulse energy	0.15-5 mJ
Pulse duration (FWHM)	60- 200 fs
Polarization	Horizontal
Spectral width	<1.2 times transform limit
Energy instability	≤1% RMS
Instability of pulse duration	≤1% pulse-to-pulse
Pulse front tilt	<10% of pulsewidth
Pulse contrast	<5% of output energy in background
Spatial mode quality	$M^2 < 1.3$
Beam astigmatism	<0.15
Input beam spatial profile	Gaussian-Hyper Gaussian
Intensity modulation	≤15%
No hot spots	
Beam pointing instability	<0.1 x (diffraction limit)
Beam divergence	<1.5 x (diffraction limit)
Beam height	120-185 mm from optical table
Beam size, $1/e^2$	<8 mm (optional external telescope can be ordered for the beam size 8- 28mm)

PERFORMANCE SPECIFICATIONS WITH 800nm/1 mJ/ 100 fs PUMP PULSES AT 1kHz
Note 1: different pump pulse duration and wavelength would affect the specifications.
Note 2: TOPAS output energy scales up linearly in 0.5-5 mJ range.
OUTPUT FROM TOPAS-C S+I

Tuning range (Signal+Idler)	1140-2600 nm
Energy (Signal+Idler)	> 250 μ J at peak
Pulse duration	(0.7 to 1) x pump pulse width
Time-bandwidth product	< 1
Polarization	Signal (1140-1600 nm) Vertical Idler (1600-2600 nm) Horizontal
Energy instability	<2% rms (1140-1550 nm range)

FEATURES

- Travelling wave dual crystal, two amplification stages configuration
- High output stability throughout the entire tuning range
- Energy conversion into the parametric radiation ~30-35%
- Angular tuning limited by crystal transparency range only
- Output pulse up to 2 times shorter than pump pulse
- Upgradability for pump energy, wavelength and pulse width
- Computer controlled operation
- Optional frequency mixers

OUTPUT FROM OPTIONAL UV-VIS GENERATOR

SH OF SIGNAL (SHS) & SH OF IDLER (SHI)

Tuning range SH for Signal	570-800 nm	
Tuning range SH for Idler	800-1140 nm	
Energy	>70 µJ at peak	
Polarization	570-800 nm	Horizontal
	800-1140 nm	Vertical

PUMP+ IDLER (SFI)

Tuning range	533-600 nm	
Pulse energy	>60 µJ at peak	
Polarization	Vertical	

PUMP+ SIGNAL (SFS)

Tuning range	470-533 nm	
Pulse energy	>90 µJ at peak	
Polarization	Vertical	

SH OF SHS & SH OF SHI (FHS & FHI)

Tuning range SH of SHS	285-400 nm	
Tuning range SH of SHI	400-480 nm	
Energy	>15 µJ at peak	
Polarization	285-400 nm	Vertical
	400-480 nm	Horizontal

SH OF SFS & SH OF SFI

Tuning range SH of SFS	240-266 nm	
Tuning range SH of SFI	266-295 nm	
Energy	>8 µJ at peak	
Polarization	Horizontal	

**OUTPUT FROM OPTIONAL DEEP UV GENERATOR
(assuming secondary 0.5 mJ pump channel)**

PUMP+SH OF SFS, PUMP+SH OF SFI, Pump+FHS

Tuning range pump+SH of SFS	190-200 nm	
Tuning range pump+SH of SFI	200-215 nm	
Tuning range pump+FHS	215-240 nm	
Pulse energy	>3 µJ	
Polarization	Vertical	

Pulse duration with all UV-VIS and Deep UV options (0.8-1.2) x pump pulse width

**OUTPUT FROM OPTIONAL NON-COLLINEAR OR COLLINEAR
DIFFERENCE-FREQUENCY GENERATOR**

SIGNAL-IDLER (NDFG1, DFG1)

Tuning range	2.4-11 µm	
Energy	>8 µJ @ 4 µm	
	>1.5 µJ @ 10 µm	
Pulse duration	(1 to 1.5) x pump pulse width	
Polarization	Horizontal	

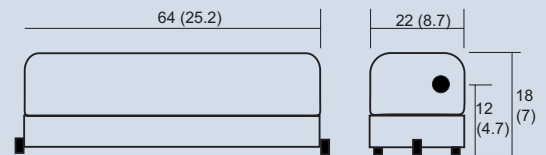
SIGNAL-IDLER (NDFG2, DFG2)

Tuning range	4-20 µm	
Energy	>4 µJ @ 5 µm	
	>0.3 µJ @ 15 µm	
Pulse duration	(1-2) x pump pulse width	
Polarization	Horizontal	

ACCESSORIES

- Frequency doubling and mixing options
- Deep-UV and mid-IR wavelength extensions
- Wavelength separators
- Polarization control unit

DIMENSIONS in cm (inches)



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MODEL 80C* (60-200 fs pump)

PERFORMANCE DATA

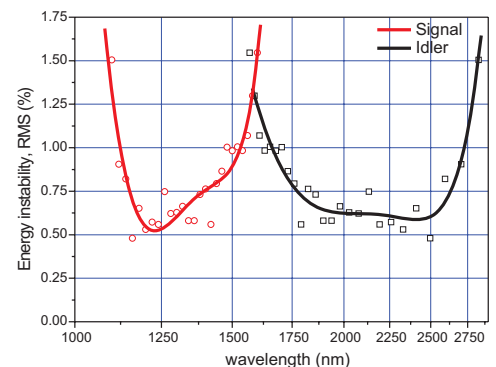
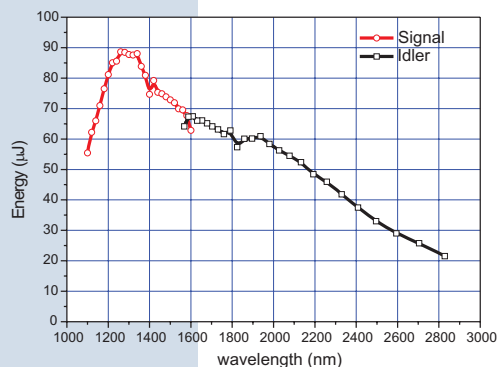
TOPAS-C Model 80C* is pumped by a fundamental harmonic of Ti:sapphire laser amplifiers with 60-200 fs pulsewidth and covers wavelength range from 1140 to 2600 nm. With optional frequency mixers this range can be extended from 190 nm to 20 microns.

PUMP REQUIREMENTS

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OUTPUT FROM TOPAS-C

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Energy (signal+idler)	> 250 μJ at peak
Pulse duration	(0.7 to 1.0) x pump pulse width
Polarization	signal (1140-1600 nm) vertical idler (1600-2600 nm) horizontal
Energy instability	<2% rms (1140-1550 nm range)



Typical output performance of TOPAS-C pumped with 0.5mJ, 792nm, 135fs pulses (Quantronix-4800). Stability of pump energy ~0.5% rms.

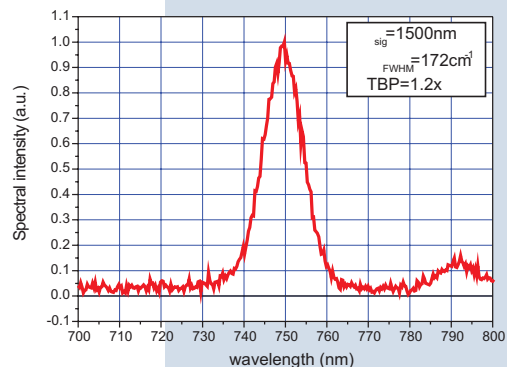
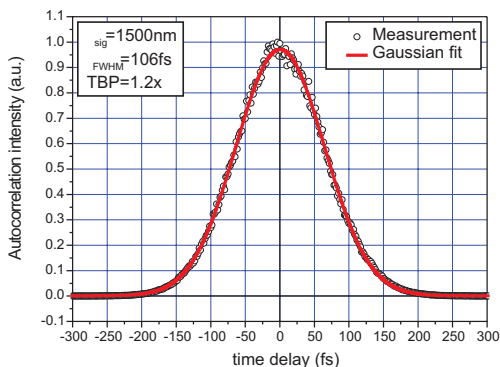
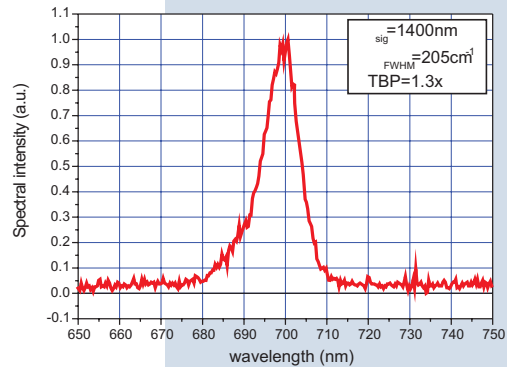
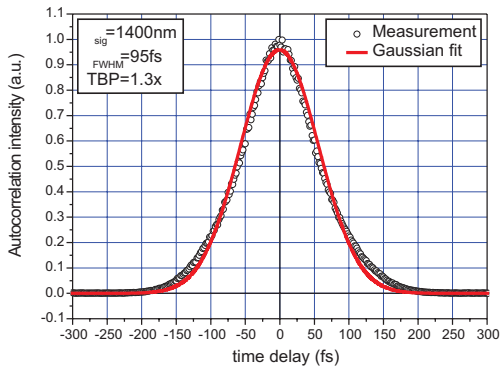
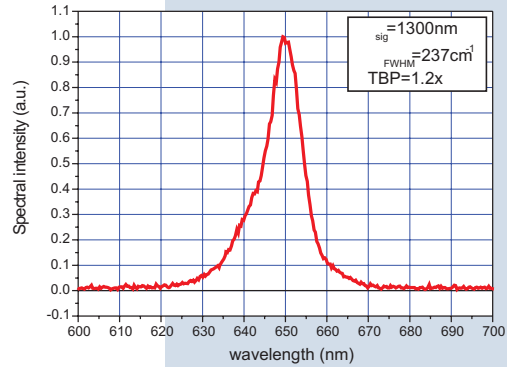
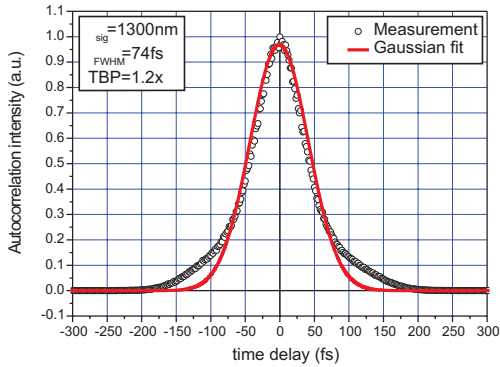
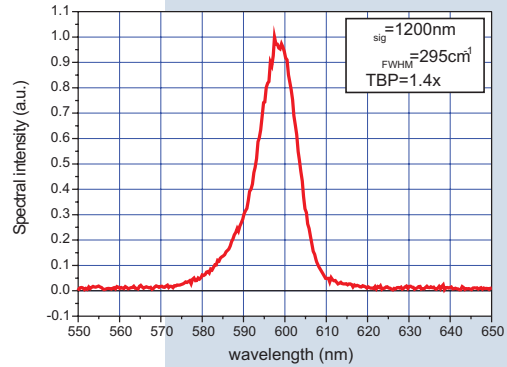
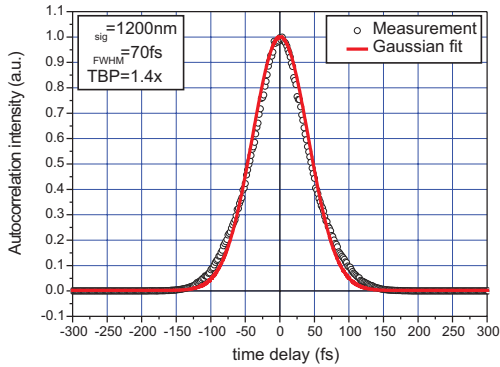
Note: output energies scale linearly with the pump energy in the pump energy range of 0.5 - 5 mJ

PERFORMANCE DATA

Signal Autocorrelations and SHS Spectra



Typical output performance of TOPAS-C pumped with 0.5mJ, 792nm, 135fs pulses (Quantronix-4800).



Note: TBP value is given with respect to TBP of transform limited pulse